

REMARKS

Applicants have now reviewed the present application in consideration of the Office Action dated September 7, 2005. Re-examination and reconsideration are respectfully requested.

The Office Action

Claims 1-28 were presented for examination.

All claims stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Terayama et al. (5,220,151), in combination with Stava (6,111,216).

Independent Claims 1 and Its Dependent Claims 2-15 and New Dependent Claims 29, 31

In rejecting independent claim 1, the Office Action states Terayama et al. included a high-frequency switching device (INV1), a polarity control signal associated with signal "SO" from element 12, a profile control network 801 in Figure 6 or 8e in Figure 8, and a magnitude circuit associated with element 809 in Figure 6. It was further stated the allusions to control of profile parameters are taught since the system of Figure 8 stores the entire waveform profile, and therefore it controls all profile parameters.

Applicant has closely reviewed the signal generator 801 of Figure 6, and the reference signal generator 8e of Figure 8. With attention to the signal generator 801 of Figure 6, provided are switching networks 810a and 810b. In the discussion regarding these elements, beginning in column 14, approximately line 50, it is set forth that when switch 810a is switched to an a-contact, the signal generator 801 generates a sine wave signal, when 810a is switched over to a b-contact, the signal generator 801 generates a

triangular wave signal, and when switch 810a is switched over to a c-contact, the signal generator 801 generates a rectangular wave signal. Additionally, various amplification factors are achieved by use of switch 810b. Particularly, when switch 810b is switched to the a-contact, the amplification factor is set to $\frac{\pi}{2}$, when the switch is at the b-contact, the amplification factor is set to 2, and when the switch is at the c-contact, the amplification factor is set to 1.

Turning to Figure 8 of Terayama et al. '151, it is initially stated that block 8e includes ROM 101. As discussed in column 17, beginning on line 34, it is noted that ROM 101 is used for storing plural groups of data of reference signals I_r , which are predetermined as plural tables. The address terminals 8-10 of the ROM 101 are respectively connected to a voltage source +E through waveform selection switches SW1 to SW3 for selecting one of the above-mentioned plural tables, or one of three kinds of reference signals I_r . After one table or one group of the reference signals I_r is selected by the switches, SW1 to SW3, data of the reference signal I_r are selected depending on the signals outputted from the OR gates, OR1 to OR8, and then the data thereof are read out from the ROM 101 and are outputted from data terminals D thereof to input terminals D of a digital to analog converter.

In the Office Action, it is argued that claim 1's reference to the control of profile parameters is taught by the system of Figure 8, since Figure 8 stores the entire waveform profile.

However, even if this is the proper interpretation of Terayama et al. '151, Applicants note any such profile parameters would be in an interdependent relationship with each other. In other words, since the waveforms are preset or stored, whenever one of the previously stored waveforms is selected, the interrelationship between those parameters

will be the same.

On the other hand, the electric arc welder of claim 1 now more particularly recites that each of the profile parameters are individually settable with respect to each of the other ones of the profile parameters.

Thus, language has been added to claim 1 to clarify the profile parameters are individually settable, and the claimed welder may set each of the parameters individually, and independent from the other parameters. This is not possible based on the concepts of the cited '151 patent.

Claim 1 has been further amended to recite that the claimed system, as seen for example in Figure 17, includes a frequency setting circuit, a data cycle setting circuit, an up-ramp rate setting circuit, and a down-ramp rate setting circuit, as part of the profile control network. There is no such parameter setting circuits taught or fairly disclosed in the cited '151 patent. This is so, since the individual settable features as described in claim 1 are not taught or fairly considered in the '151 patent.

For at least these reasons, claim 1 is distinguished.

As claims 2-15 further define features of the present application, it is submitted these claims are also distinguished.

Applicants have added new dependent claims 29-31. New dependent claim 29 further defines the profile control network is configured to provide real time parameter control, and that such control is to individual sections of the individual waveform. This concept is not taught or considered by the cited art.

New dependent claim 30 further defines the electric arc welder of claim 1 includes parallel power supplies. Applicants respectfully submit as discussed on page 4 of the

present application, that while parallel power supply networks are known to exist, such parallel supply networks have not been taught or fairly considered in an electric arc welding system to provide a manner of individual parameter control for the welding waveform.

Claim 31 further recites that, depending on whether the electrode is a solid electrode or a cored electrode, the profile control network is configured to set the profile parameters to different values. This claim emphasizes and highlights a valuable aspect of the present application, where the real time control of individual waveforms generated between the electrode and workpiece may be precisely developed. For example, this concept is discussed on page 10, beginning on line 7 through line 16. Such precision based on the type of electrode or wire has not been taught or fairly considered in the cited art.

For at least these reasons, claims 1-16 and new claims 29-31 are distinguished from the cited art.

**Independent Claim 16, Dependent Claims 17-21
and New Dependent Claim 32, 33 are Distinguished**

Turning to independent claim 16, this claim has been amended to more particularly recite that the step of establishing the general profile of an individual waveform is achieved by individually setting more than one profile parameter of an individual waveform. As noted previously, even if it is argued the Terayama et al. ('151) patent teaches an entire waveform is stored and generated, such waveform generation does not permit for the individual setting of particular profile parameters. Rather, since the waveforms are pre-stored, the individually settable parameters recited in claim 16 (e.g., frequency, duty cycle, up-ramp rate and down-ramp rate), are not taught or fairly suggested.

New dependent claim 32 further defines the profile control network is configured to provide real time parameter control, and that such control is to individual sections of the

individual waveform. This concept is not taught or considered by the cited art.

Applicant has also added new dependent claim 33, which clarifies that the step of establishing the general profile, further includes individually setting the more than one profile parameter based on a type of electrode to be used in the welding process. Thus, the present system will set parameters differently if, for example, the electrode is solid wire versus being cored wire. This concept has not been taught or fairly suggested in the cited art.

For the reasons set forth above, it is submitted independent claim 16 and its dependent claims 17-21 and 32-33 are distinguished from the cited art.

Independent Claim 22 and Its Dependent Claims 23-27 Have Been Canceled

Applicants have canceled claims 22-27 to move the prosecution of the present case forward. It is submitted these claims are being removed not for patentability reasons, but rather to focus on the claims remaining in the application.

Independent Claim 28 and Its New Dependent Claims 34-36 are Distinguished

Independent claim 28 has been amended to illustrate the profile control network includes a frequency setting circuit, a duty-cycle setting circuit, an up-ramp rate circuit and a down-ramp rate circuit.

As has been discussed above, the cited references do not teach or fairly disclose such concepts. For at least these reasons, it is submitted claim 28 is distinguished.

Applicant has also added new dependent claim 34, which recites that the profile control network controls the individual waveform on a real time basis by adjustment of individual sections of the individual waveform.

New claim 35 emphasizes that the power supplies of the electric arc welder may be used in parallel.

New claim 36 emphasizes the profile control network is configured to select parameters differently, based on the electrode being used in the welding process.

It is submitted the concepts of claims 34-36 are not taught or fairly suggested in the cited art.

CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1-21 and 28-36) are now in condition for allowance. An early notice to that effect is therefore earnestly solicited.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Mark S. Svat, at Telephone Number (216) 861-5582.

Respectfully submitted,

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